

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (currently amended): A fuel cell stack with improved voltage reversal tolerance, said fuel cell stack comprising a plurality of fuel cells, and each of said fuel cells comprises ~~cell comprising~~ a cathode, an electrolyte, and an anode, and each of said anodes anode comprising a supported catalyst, wherein said catalyst is selected from the group consisting of precious metals, transition metals, oxides thereof, alloys thereof, and mixtures thereof, and the support is a carbon support, and wherein the loading of said catalyst on said support is greater than ~~about~~ 40% by weight.

Claim 2 (currently amended): The fuel cell stack of claim 1 wherein said electrolyte is a solid polymer and said fuel cell is a solid polymer electrolyte fuel cell.

Claim 3 (currently amended): The fuel cell stack of claim 1 wherein said catalyst comprises platinum.

Claim 4: Cancelled.

Claim 5 (currently amended): The fuel cell stack of claim 4 wherein said support comprises acetylene or furnace carbon black.

Claim 6 (currently amended): A fuel cell stack with improved voltage reversal tolerance, said fuel cell stack comprising a plurality of fuel cells, and each of said fuel cells comprises ~~cell comprising~~ a cathode, an electrolyte, and an anode, and each of said anodes ~~anode~~ comprising a supported catalyst, wherein said catalyst is selected from the group consisting of precious metals, transition metals, oxides thereof, alloys thereof, and mixtures thereof, and the support is a carbon support, and wherein the catalyst covers greater than about 6% of the surface of said support.

Claim 7 (currently amended): The fuel cell stack of claim 6 wherein the catalyst covers greater than about 9% of the surface of said support.

Claim 8 (currently amended): A fuel cell stack with improved voltage reversal tolerance, said fuel cell stack comprising a plurality of fuel cells, and each of said fuel cells comprises ~~cell comprising~~ a cathode, an electrolyte, and an anode, and each of said anodes ~~anode~~ comprising a supported catalyst, wherein said catalyst is selected from the group consisting of precious metals, transition metals, oxides thereof, alloys thereof, and mixtures thereof, and the support is a carbon support, and wherein the catalyst/support interface perimeter is less than about 10^{11} m per gram of catalyst.

Claim 9 (currently amended): The fuel cell stack of claim 8 wherein the catalyst/support interface perimeter is less than about 4×10^{10} m per gram of catalyst.

Claims 10-14: Cancelled.

Claim 15 (currently amended): ~~The fuel cell of claim 10~~ A fuel cell stack with improved voltage reversal tolerance, said fuel cell stack comprising a plurality of fuel cells, and each of said fuel cells

comprises a cathode, an electrolyte, and an anode, and
each of said anodes comprising a supported catalyst,
wherein said catalyst is selected from the group
consisting of precious metals, transition metals,
oxides thereof, alloy thereof, and mixtures thereof,
and wherein said support comprises Ti_4O_7 .

Claim 16 (currently amended): A method of making
a fuel cell stack more tolerant to voltage reversal,
said fuel cell stack comprising a plurality of fuel
cells, and each of said fuel cells comprises cell
~~comprising~~ a cathode, a solid polymer electrolyte, and
an anode, ~~and~~ each of said anodes ~~anode~~ comprising a
supported catalyst, wherein said method comprises
~~increasing~~ depositing a quantity ~~the loading~~ of said
catalyst on said support ~~to be~~ such that the catalyst
loading on said support is greater than ~~about~~ 40% by
weight

Claim 17 (currently amended): A method of making
a fuel cell stack more tolerant to voltage reversal,
said fuel cell stack comprising a plurality of fuel
cells, and each of said fuel cells comprises cell
~~comprising~~ a cathode, a solid polymer electrolyte, and

an anode, and each of said anodes ~~anode~~ comprising a supported catalyst, wherein said method comprises increasing the catalyst coverage of the surface of said support to be greater than about 6%.

Claim 18 (currently amended): The method of claim 17 comprising increasing the catalyst coverage of the surface of said support to be greater than about 9%.

Claim 19 (currently amended): A method of making a fuel cell stack more tolerant to voltage reversal, said fuel cell stack comprising a plurality of fuel cells, and each of said fuel cells comprises ~~cell comprising~~ a cathode, a solid polymer electrolyte, and an anode, and each of said anodes ~~anode~~ comprising a supported catalyst, wherein said method comprises decreasing the catalyst/support interface perimeter to be less than about 10^{11} m per gram of catalyst.

Claim 20 (currently amended): The method of claim 19 comprising decreasing the catalyst/support interface perimeter to be less than about 4×10^{10} m per gram of catalyst.

Claim 21 (currently amended): A method of making a fuel cell stack more tolerant to voltage reversal, said fuel cell stack comprising a plurality of fuel cells, and each of said fuel cells comprises ~~cell comprising~~ a cathode, a solid polymer electrolyte, and an anode, and each of said anodes ~~anode~~ comprising a supported catalyst, wherein said catalyst is selected from the group consisting of precious metals, transition metals, oxides thereof, alloy thereof, and mixtures thereof, and wherein said method comprises employing a carbon support for said catalyst that is more resistant to oxidative corrosion than carbon black.

Claim 22 (new): The fuel cell stack of claim 1, wherein the supported catalyst consists essentially of platinum on said carbon support.

Claim 23 (new): The method of claim 16, wherein the supported catalyst consists essentially of platinum on said carbon support.

Claim 24 (new): The fuel cell stack of claim 1, wherein the fuel cell stack is adapted to operate on pure hydrogen.

Claim 25 (new): The method of claim 16,
wherein the fuel cell stack operates on pure hydrogen.